

COSEL

TEST DATA OF DBS400B18
(280V INPUT)

Regulated DC Power Supply

Apr. 12, 2000

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Design Manager

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Design Engineer

コーチセル株式会社
COSEL CO.,LTD.



C O N T E N T S

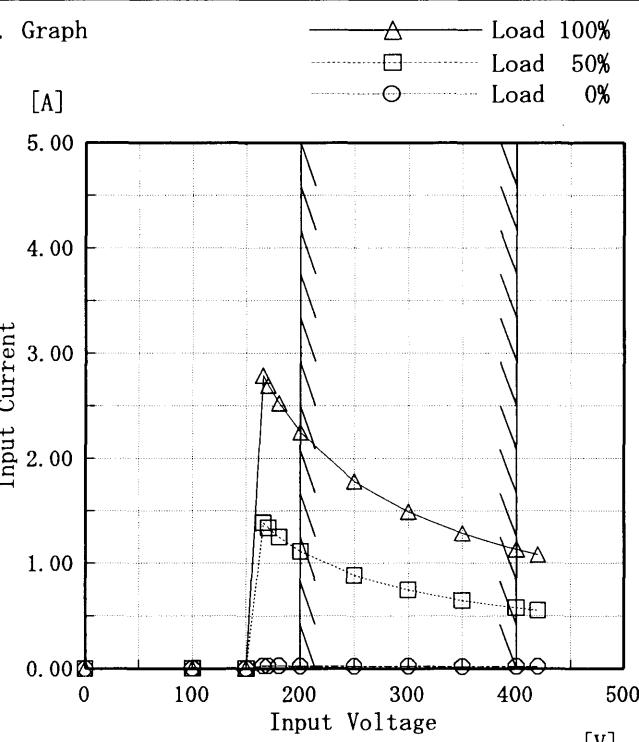
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Model	DBS400B18	Temperature	25°C																																		
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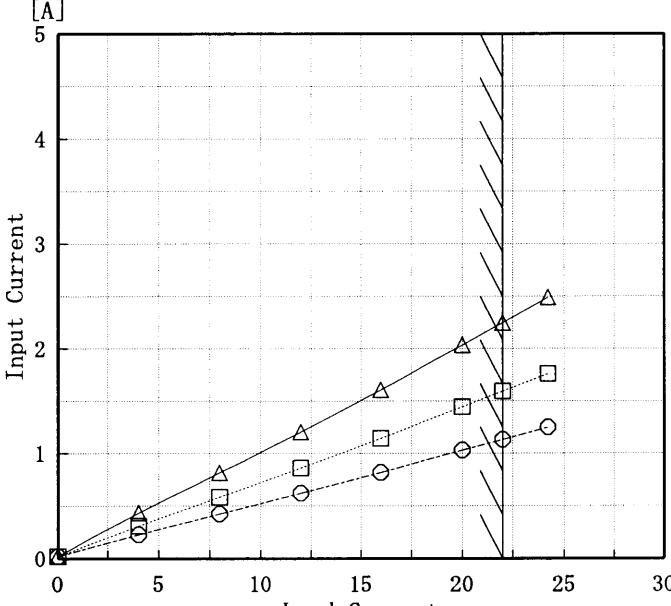
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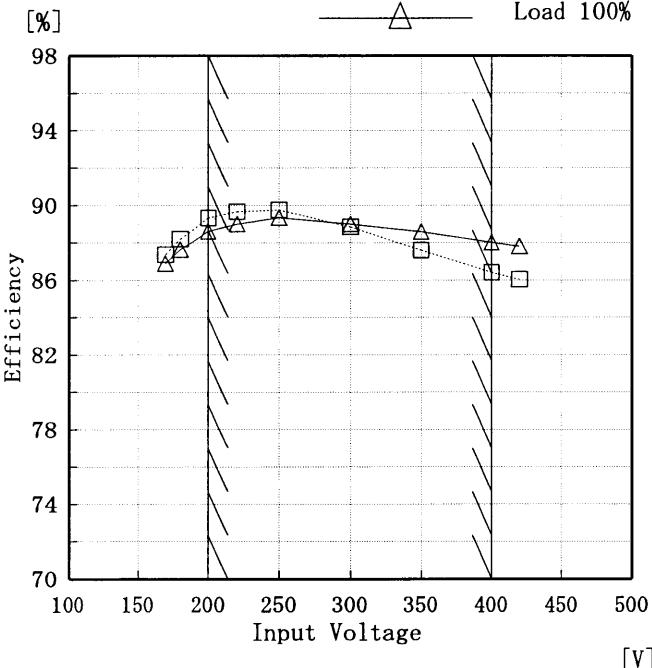
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COSEL

Model	DBS400B18	Temperature Testing Circuitry 25°C Figure A																																						
Item	Ripple Voltage (by Load Current) リップル電圧(負荷特性)																																							
Object	+18V22A																																							
1. Graph	<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 140 mV, and the X-axis ranges from 0 to 30 A. Two sets of data points are plotted: Input Volt. 200V (triangles) and Input Volt. 400V (squares). Both sets show a relatively flat line until approximately 20A, after which the ripple voltage increases sharply. A slanted line connects the points at approximately 20A for both input voltages.</p>	2. Values																																						
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Load Current [A]	Ripple Output Volt. [mV]																																							
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<p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>リップル電圧は、下図 p - p 値で示される。 (注)斜線は定格負荷電流範囲を示す。</p>		<p>Diagram illustrating the ripple voltage waveform. It shows a series of triangular pulses. A vertical double-headed arrow indicates the peak-to-peak amplitude of the waveform, labeled "Ripple [mVp-p]".</p>																																						

COSEL

Model	DBS400B18	Temperature Testing Circuitry 25°C Figure A																																						
Item	Ripple-Noise リップルノイズ																																							
Object	+18V22A																																							
1. Graph	<p>Y-axis: Ripple-Noise [mV] from 0 to 160. X-axis: Load Current [A] from 0 to 30. The Input Volt. 200V curve starts at ~15mV at 0A and rises to ~35mV at 25A. The Input Volt. 400V curve starts at ~15mV at 0A and rises to ~40mV at 25A. A slanted line indicates the range of the rated load current.</p>	2. Values																																						
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Ripple-Noise is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

リップルノイズは、下図 p - p 値で示される。

(注)斜線は定格負荷電流範囲を示す。

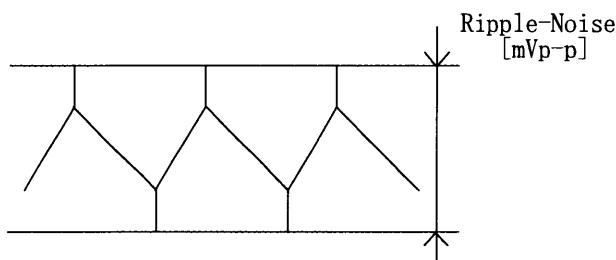


図 リップルノイズ波形図

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Model	DBS400B18	Temperature Testing Circuitry 25°C Figure A																																																							
Item	Overcurrent Protection 過電流保護																																																								
Object	+18.0V 22A																																																								
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Note: Slanted line shows the range of the rated load current.

Intermittent operation occurs when the output voltage is from 13V to 0V.

(注)斜線は定格負荷電流範囲を示す。

13V～0V間は、間欠モードとなる。

COSEL

Model	DBS400B18	Testing Circuitry Figure A																																																					
Item	Overvoltage Protection 過電圧保護																																																						
Object	+18.0V 22A																																																						
1. Graph	<p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p>																																																						
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COSEL

Model	DBS400B18	Temperature Testing Circuitry 25°C Figure A
Item	Dynamic Load Response 動的負荷變動	
Object	+18V22A	

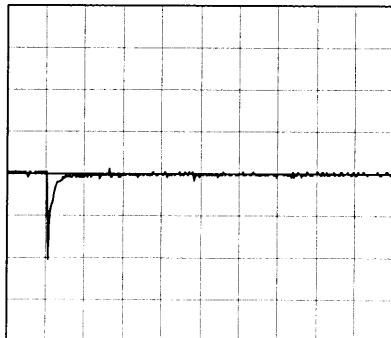
Input Volt. 280 V

Cycle 1000 mS

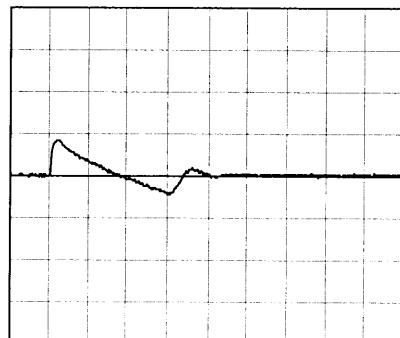
Load Current

Min. Load (0.0A) ↔

Load 100% (22.0A)



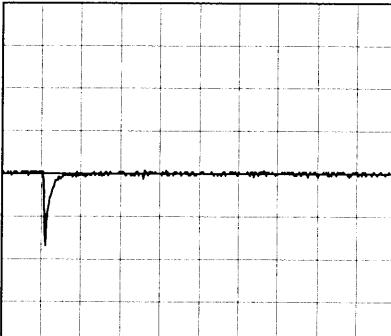
500 mV/div



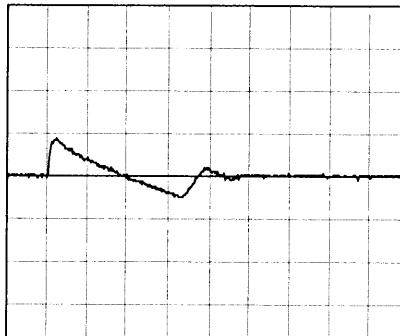
5 ms/div

Min. Load (0.0A) ↔

Load 50% (11.0A)



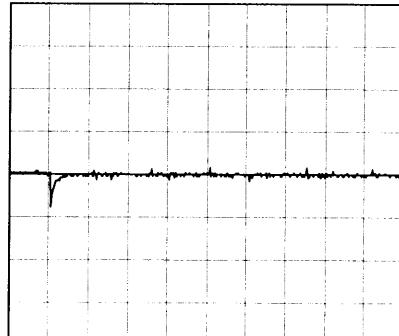
500 mV/div



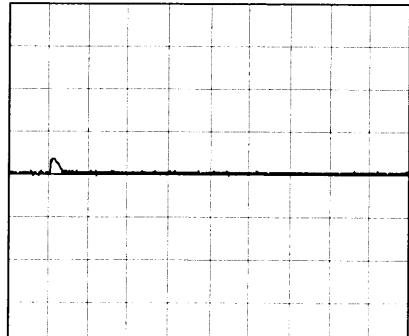
5 ms/div

Load 10% (2.2A) ↔

Load 100% (22.0A)



500 mV/div



5 ms/div

COSEL

Model	DBS400B18																				
Item	Rise and Fall Time 立上り、立下り時間	Temperature Testing Circuitry	25°C Figure A																		
Object	+18.0V22A																				
1. Graph																					
<p style="text-align: right;">Input Volt. 200 V</p>																					
2. Values [mS]																					
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Load \ Time	T d	T r	T s	T h	T f																
50 %	16.25	5.25	21.50	0.40	8.30																
100 %	17.25	5.00	22.25	0.15	4.10																

COSEL

Model	DBS400B18																																																					
Item	Ambient Temperature Drift 周囲温度変動	Testing Circuitry Figure A																																																				
Object	+18.0V 22A																																																					
1. Graph																																																						
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COSEL

Model	DBS400B18																																						
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧																																						
Object	+18.0V 22A																																						
1. Graph	<p style="text-align: center;">-----□----- Load 50%</p> <p style="text-align: center;">——△—— Load 100%</p> <p style="text-align: center;">Input Voltage [V]</p> <p style="text-align: center;">Ambient Temperature [°C]</p>																																						
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Note: Slanted line shows the range of the rated ambient temperature.

(注)斜線は定格周囲温度範囲を示す。

COSEL

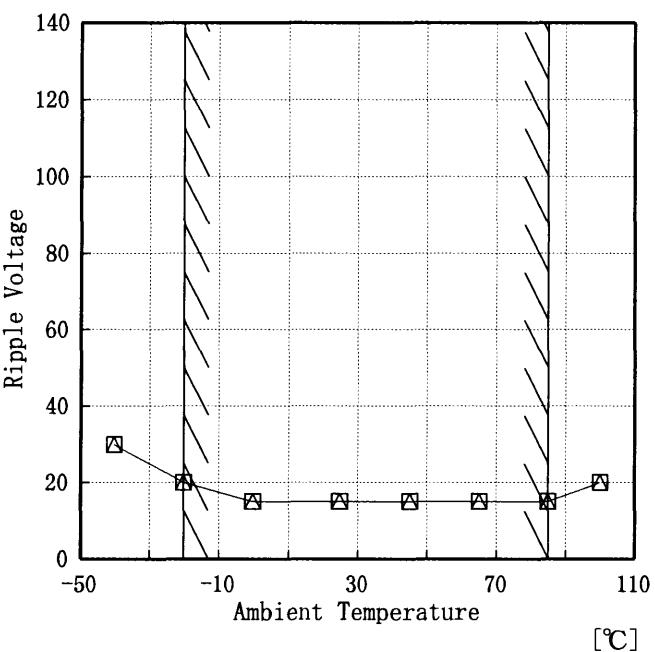
Model DBS400B18

Item Ripple Voltage (by Ambient Temp.)
リップル電圧 (周囲温度特性)

Object +18V22A

1. Graph

[mV]



Input Volt. 280 V

Note: Slanted line shows the range of the rated ambient temperature.

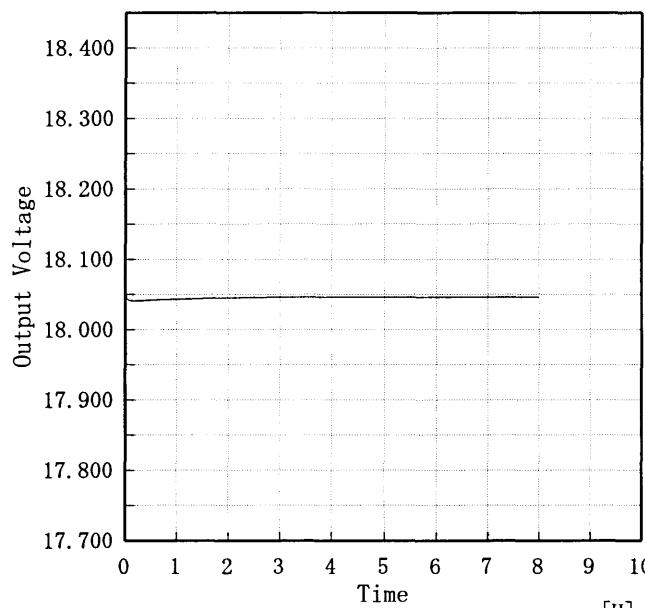
(注)斜線は定格周囲温度範囲を示す。

Testing Circuitry Figure A

2. Values

Ambient Temp. [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	30	30
-20	20	20
0	15	15
25	15	15
45	15	15
65	15	15
85	15	15
100	20	20
—	—	—
—	—	—
—	—	—

COSEL

Model	DBS400B18	Temperature	25°C																						
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry	Figure A																						
Object	+18.0V 22A																								
1. Graph		2. Values																							
<p>[V]</p>  <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 280V</p> <p>Load 100%</p>		<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>18.064</td></tr> <tr><td>0.5</td><td>18.042</td></tr> <tr><td>1.0</td><td>18.043</td></tr> <tr><td>2.0</td><td>18.045</td></tr> <tr><td>3.0</td><td>18.046</td></tr> <tr><td>4.0</td><td>18.046</td></tr> <tr><td>5.0</td><td>18.046</td></tr> <tr><td>6.0</td><td>18.046</td></tr> <tr><td>7.0</td><td>18.046</td></tr> <tr><td>8.0</td><td>18.046</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	18.064	0.5	18.042	1.0	18.043	2.0	18.045	3.0	18.046	4.0	18.046	5.0	18.046	6.0	18.046	7.0	18.046	8.0	18.046
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8.0	18.046																								



Model	DBS400B18		
Item	Output Voltage Accuracy 定電圧精度	Testing Circuitry	Figure A
Object	+18.0V 22A		

1. Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -20~85 °C

Input Voltage : 200~400 V

Load Current : 0~22 A

* Output Voltage Accuracy = ±(Maximum of Output Voltage — Minimum of Output Voltage) / 2

$$* \text{ Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

1. 定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 -20~85 °C

入力電圧 200~400 V

負荷電流 0~22 A

* 定電圧精度(変動値) = ±(出力電圧の最高値—出力電圧の最低値) / 2

$$* \text{ 定電圧精度(変動率)} = \frac{\text{変動値}}{\text{定格出力電圧}} \times 100$$

2. Values

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-20	400	0	18.112		
Minimum Voltage	85	400	22	17.976	±69	±0.4



Model	DBS400B18	Testing Circuitry Figure A
Item	Condensation 結露特性	
Object	+18V 22A	

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°C for an hour with the input off.
- ② Taking it out of the tank and dewing itself in a room where the temperature is 25°C and the humidity is 40%RH.
- ③ Testing electrical characteristics of the unit to confirm there be no fault.

1. 結露特性試験

入力を切った状態で、恒温槽で-10°Cに冷却しておき、約1時間後に恒温槽から取り出し、室温25°C、湿度40%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。

2. Values

Item	Data	Testing Conditions
Output Voltage [V]	18.087	Input Volt.: 280V, Load Current:22A
Line Regulation [mV]	1	Input Volt.: 200~400V, Load Current:22A
Load Regulation [mV]	16	Input Volt.: 280V, Load Current:0~22A



Model	DBS400B18	Temperature Testing Circuitry	25°C Figure C
Item	Line Noise Tolerance 入力雑音耐量		
Object	+18V22A		

1. Results

Pulse Width [nS]	MODE	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation
1000	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation

Conditions

Input Voltage : 200 V
 Pulse Voltage : ±2000 V
 Pulse Cycle : 10 mS
 Pulse Input Duration: 1 min. or more
 Load : 100 %

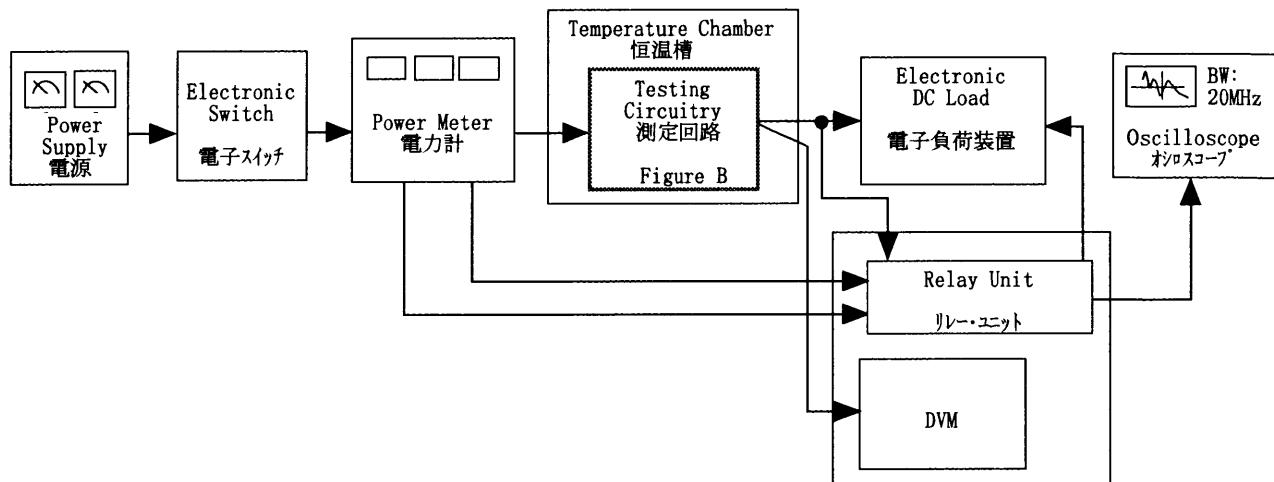
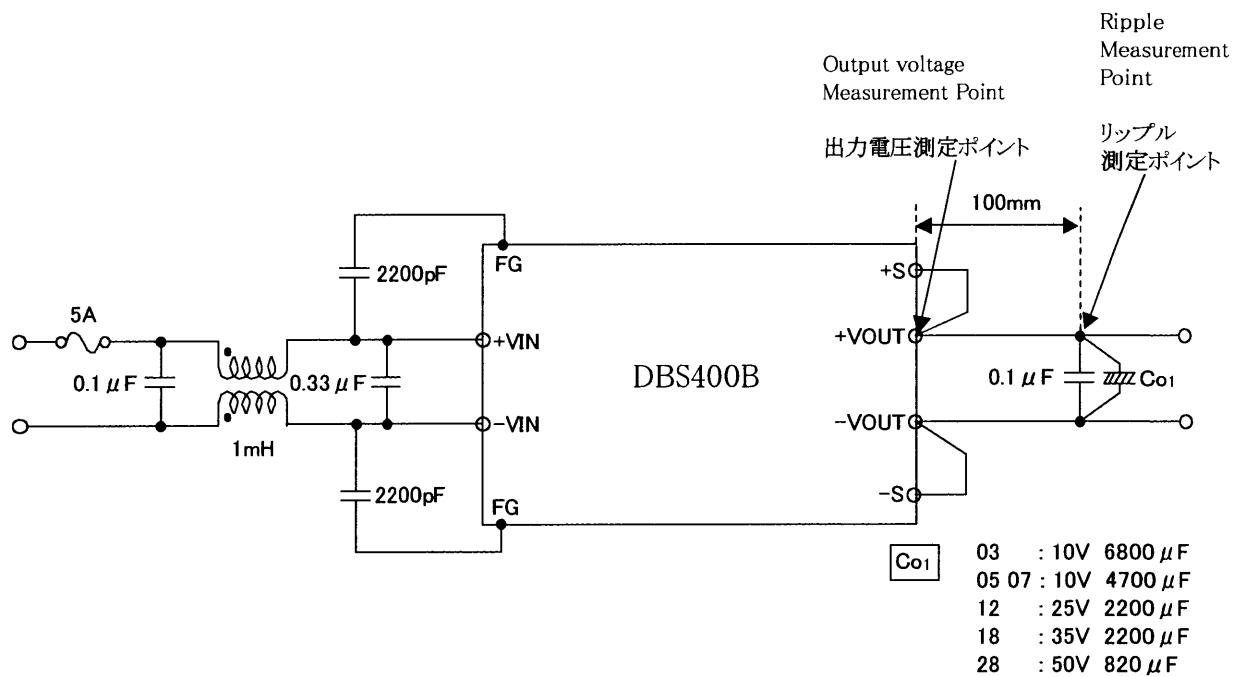


Figure A

Figure B (General Electric Characteristic)
一般電気特性

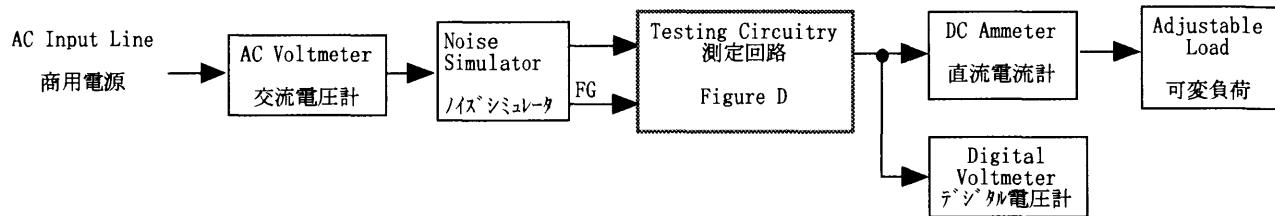
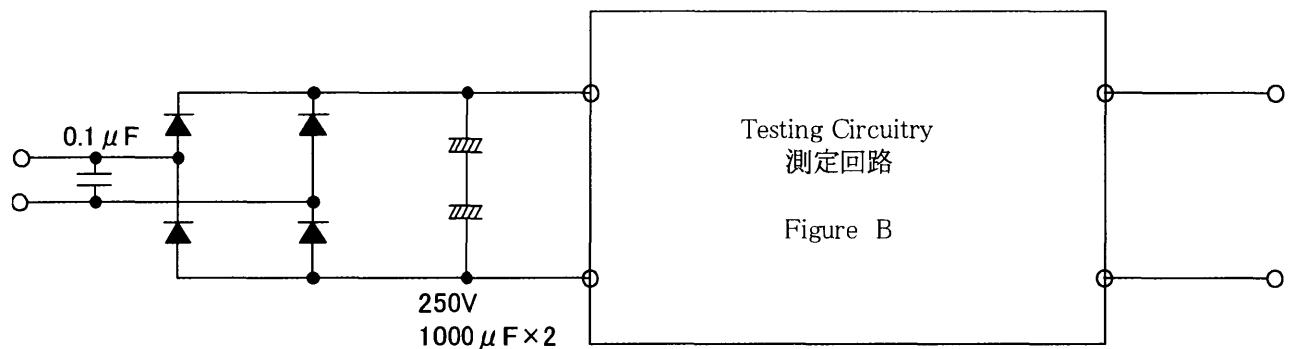


Figure C

Figure D (Line Noise Tolerance)
入力雑音耐量